CHAPTER 2

DESCRIPTION OF THE PICKWICK LAKE WATERSHED

2.1. Background. Pickwick Landing was the name of an early settlement in the watershed. Its name was assigned by an early postmaster whose favorite book was The Pickwick Papers by Charles Dickens.

Streams in the Pickwick watershed are characterized by coarse chert gravel and sand substrates with areas of bedrock, moderate gradients, and relatively clear water. Some agriculture occurs in the flatter areas and in the stream and river valley.

This Chapter describes the location and characteristics of the Pickwick Lake Watershed.

2.2. Description of the Watershed.

2.2.A. General Location. Located in Middle Tennessee and Alabama, the Tennessee portion of the Pickwick Lake Watershed includes parts of Hardin, Lawrence, and Wayne Counties.

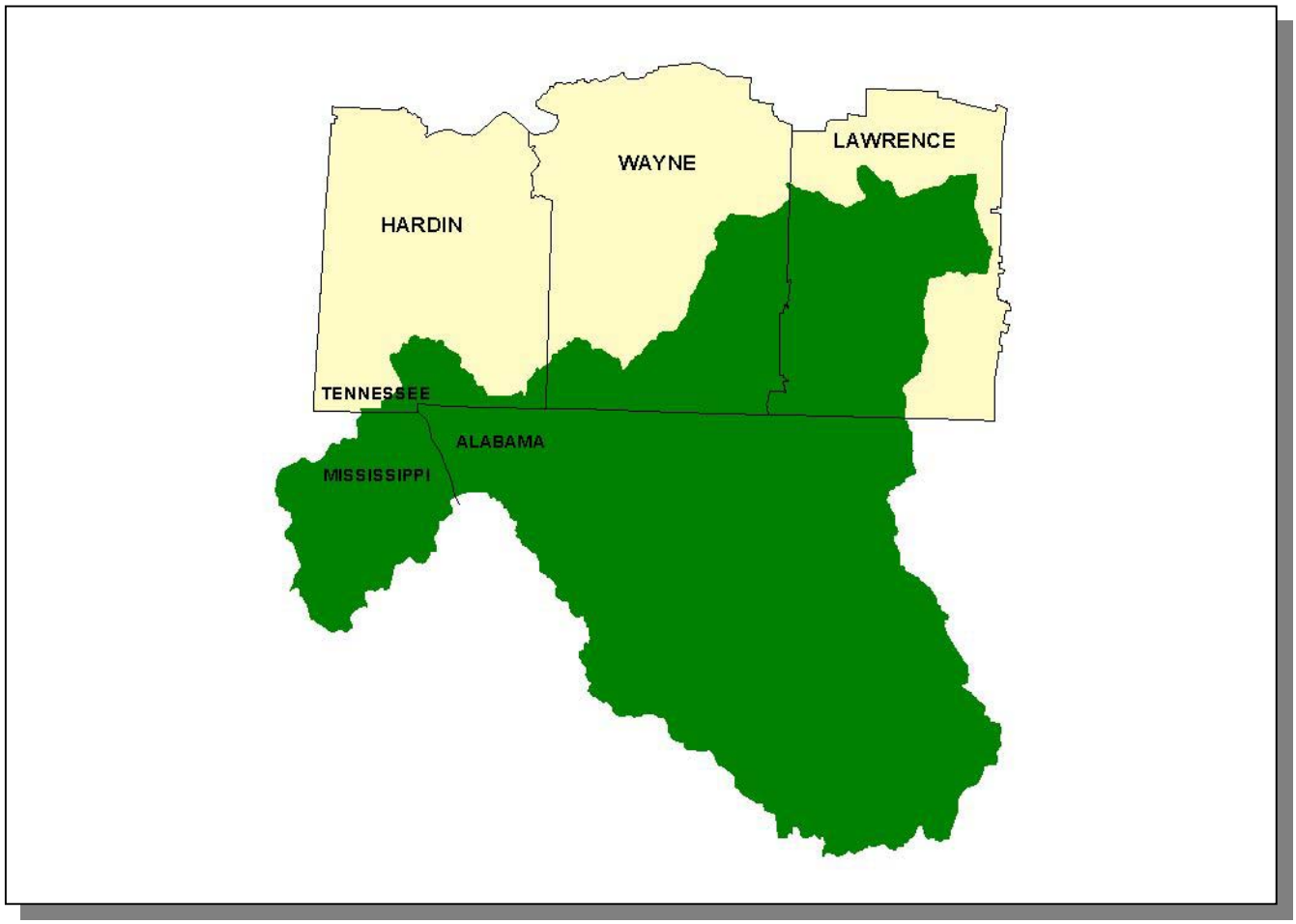

Figure 2-1. General Location of the Pickwick Lake Watershed.

COUNTY	% OF WATERSHED IN EACH COUNTY
Wayne	52.8
Lawrence	38.2
Hardin	9.0

Table 2-1. The Pickwick Lake Watershed Includes Parts of Three Middle Tennessee Counties.

2.2.B. Population Density Centers. Four state highways serve the major communities in the Pickwick Lake Watershed.

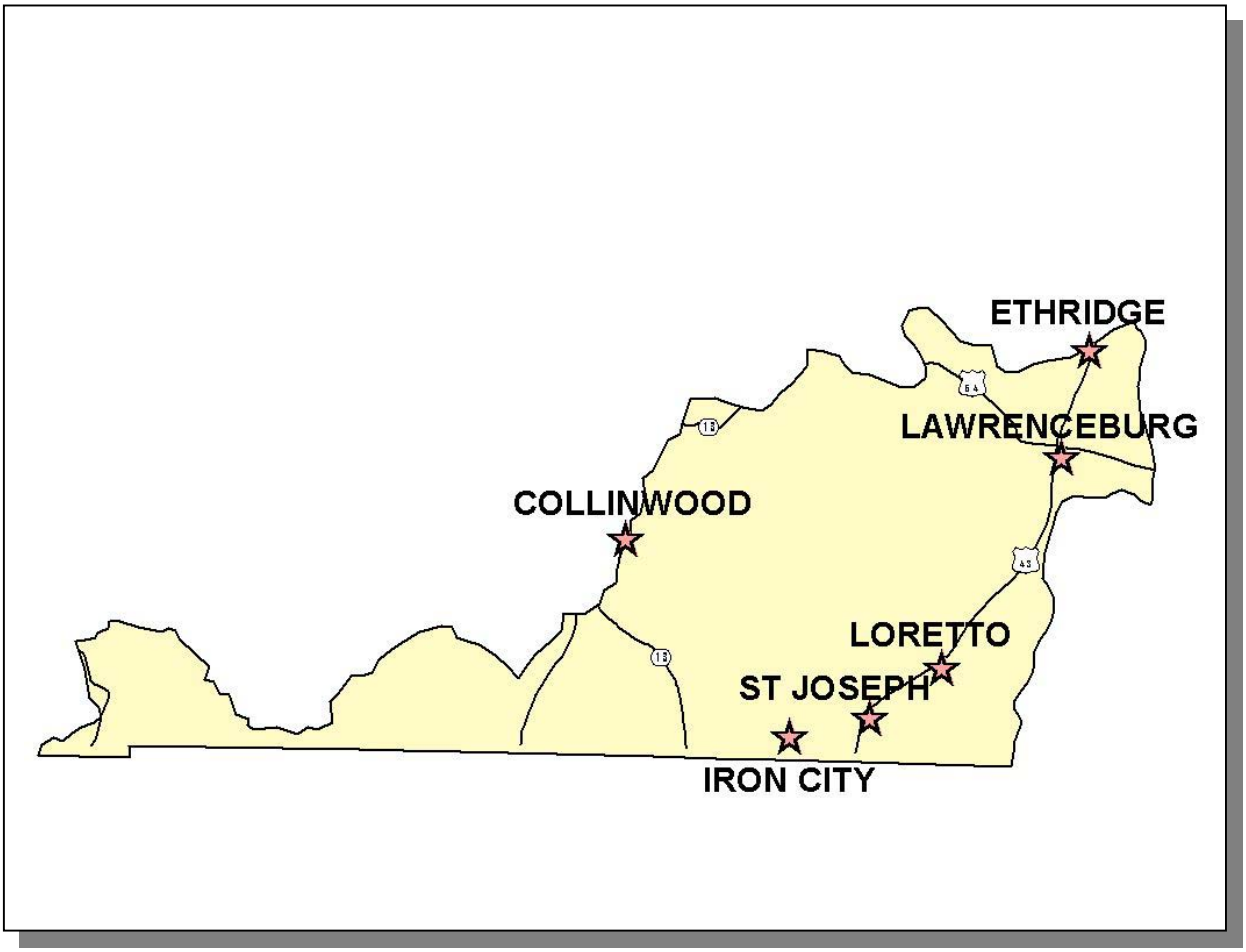

Figure 2-2. Municipalities and Roads in the Tennessee Portion of the Pickwick Lake Watershed.

MUNICIPALITY	POPULATION	COUNTY
Collinwood	1,041	Wayne
Ethridge	625	Lawrence
Iron City	437	Lawrence, Wayne
Lawrenceburg*	11,109	Lawrence
Loretto	1,649	Lawrence
St. Joseph	872	Lawrence

Table 2-2. Municipalities in the Tennessee Portion of the Pickwick Lake Watershed. *Population based on 1996 census (Tennessee Blue Book). Asterisk (*) indicates county seat.*

2.3. General Hydrologic Description.

2.3.A. Hydrology. The Pickwick Lake Watershed, designated 06030005 by the USGS, is approximately 639 square miles and empties to Kentucky Lake (Tennessee River).

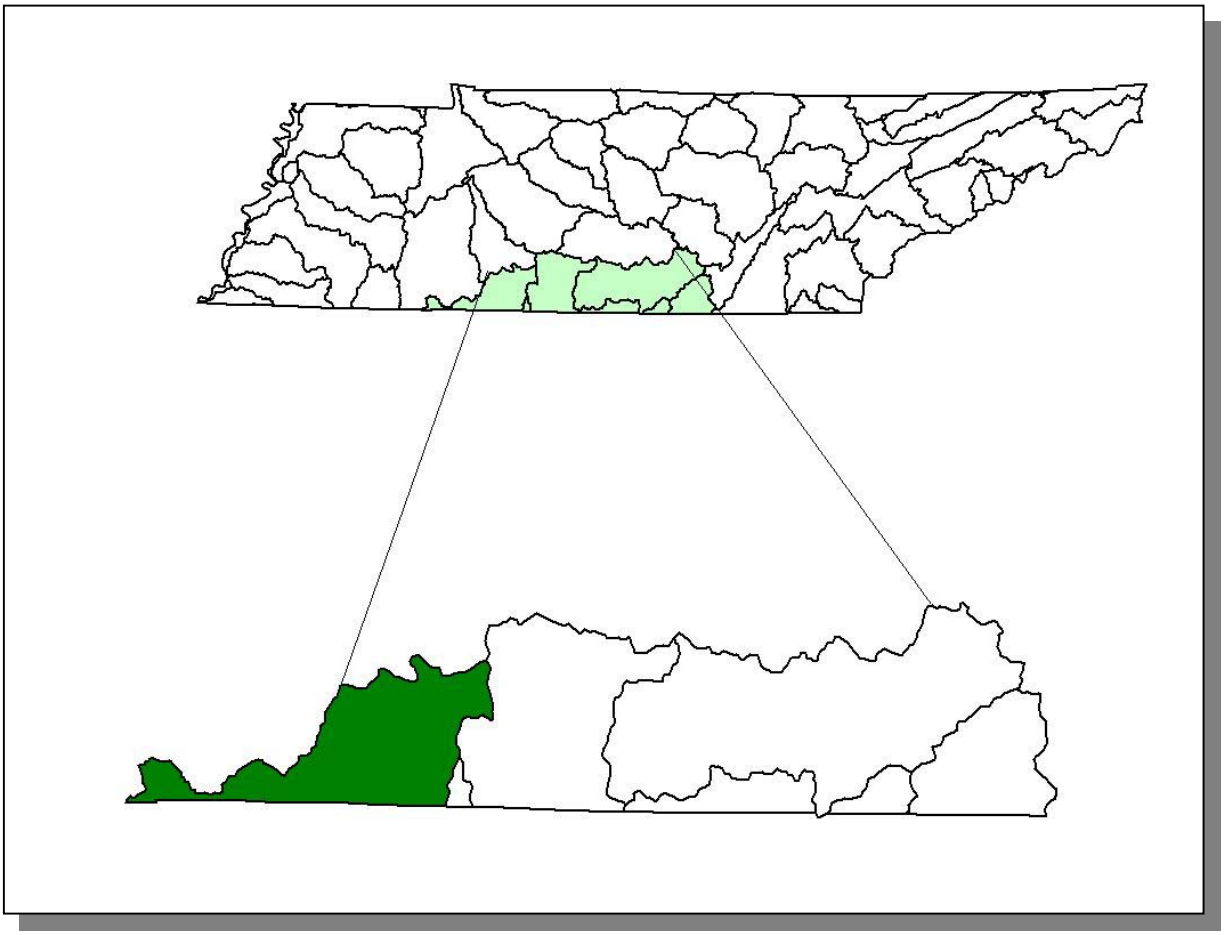

Figure 2-3. The Pickwick Lake Watershed is Part of the Lower Tennessee River Basin.

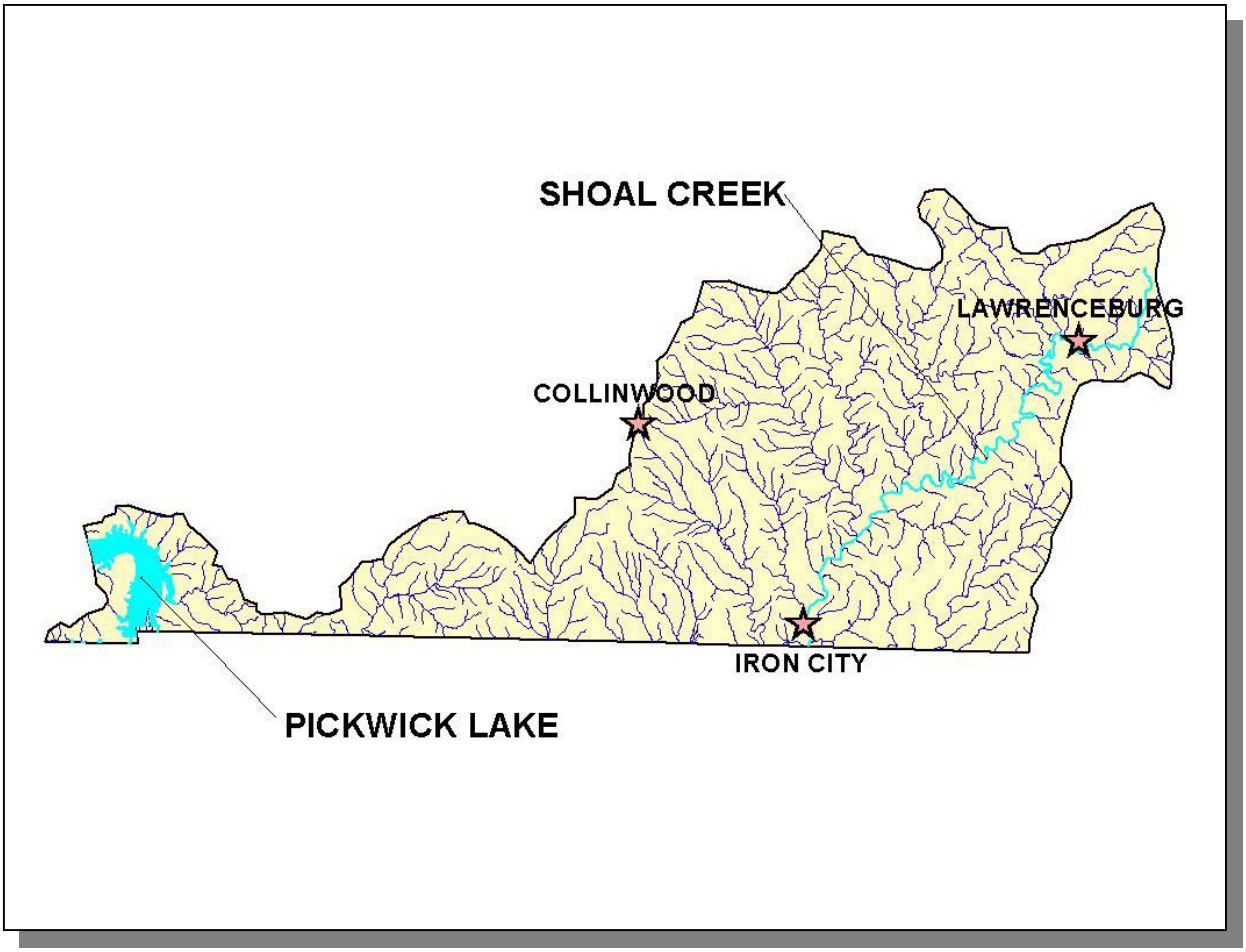

Figure 2-4. Hydrology in the Tennessee Portion of the Pickwick Lake Watershed. *There are 953 stream miles and 5,840 lake acres recorded in River Reach File 3 in the Pickwick Lake Watershed. Location of the Pickwick Lake and the cities of Collinwood, Iron City, and Lawrenceburg are shown for reference.*

2.3.B. Dams. There are 5 dams inventoried by TDEC Division of Water Supply in the Pickwick Lake Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

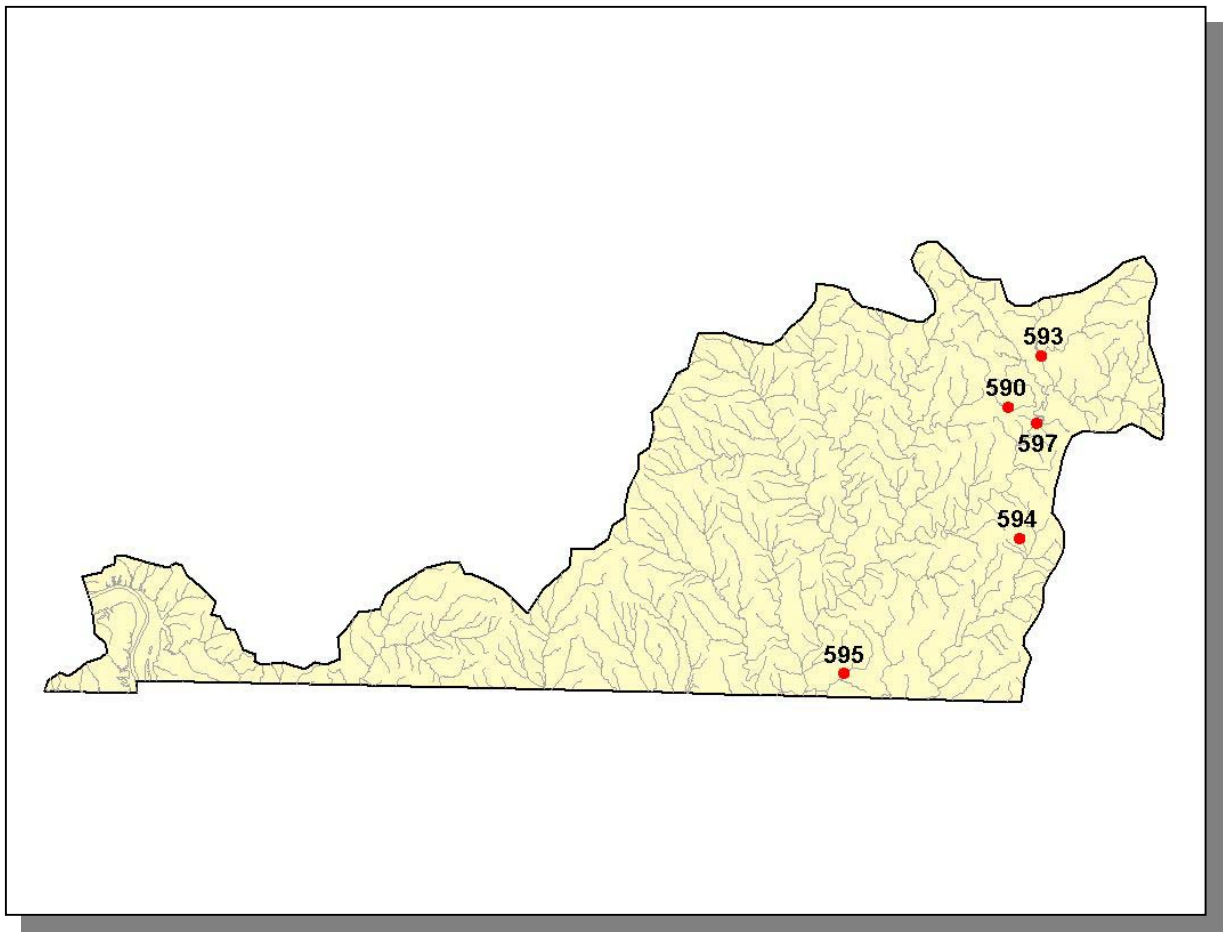

Figure 2-5. Location of Inventoried Dams in the Tennessee Portion of the Pickwick Lake Watershed. *More information is provided in Pickwick-Appendix II and on the TDEC homepage at: http://gwidc.gwi.memphis.edu/website/dams/viewer.htm*

2.4. LAND USE. Land Use/Land Cover information was provided by EPA Region 4 and was interpreted from 1992 Multi-Resolution Land Cover (MRLC) satellite imagery.

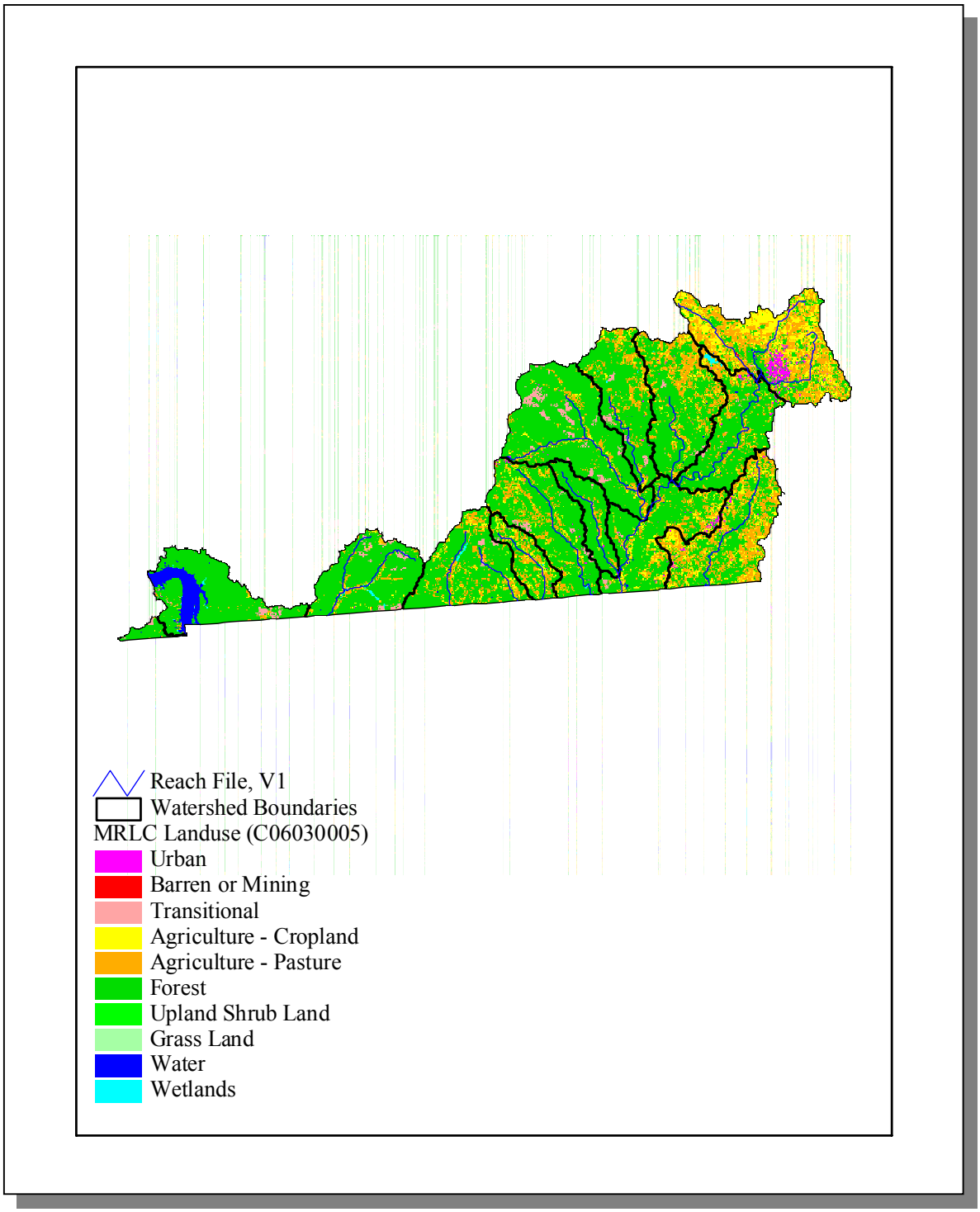

Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.

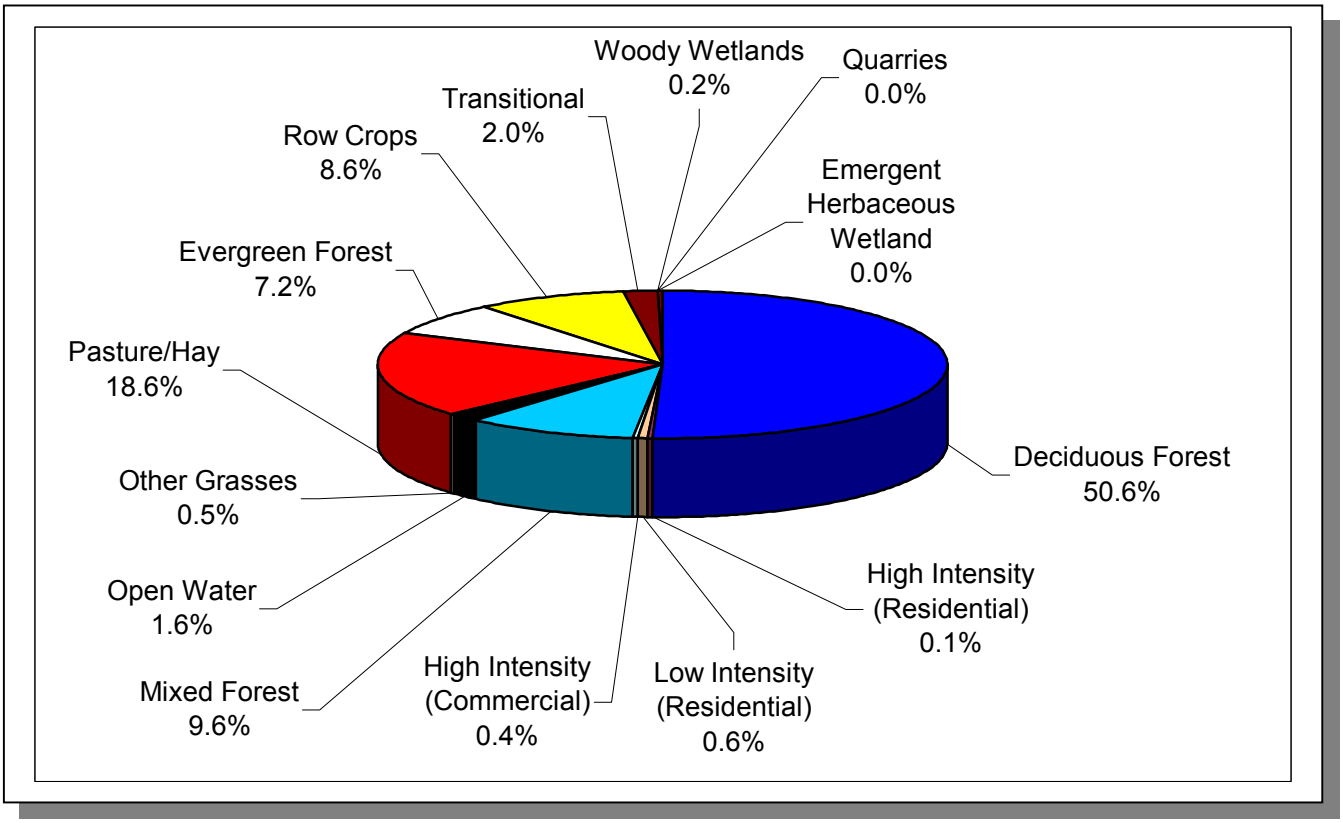

Figure 2-7. Land Use Distribution in the Tennessee Portion of the Pickwick Lake Watershed. *More information is provided in Pickwick-Appendix II.*

2.5. ECOREGIONS AND REFERENCE STREAMS. Ecoregions are defined as relatively homogeneous areas of similar geography, topography, climate and soils that support similar plant and animal life. Ecoregions serve as a spatial framework for the assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregion studies include the selection of regional stream reference sites, identifying high quality waters, and developing ecoregion-specific chemical and biological water quality criteria.

There are eight Level III Ecoregions and twenty-five Level IV subecoregions in Tennessee. The Pickwick Lake Watershed lies within 2 Level III ecoregions (Southeastern Plains, Interior Plateau) and contains 4 Level IV subecoregions (Griffen, Omernik, Azavedo):

- The Southeastern Plains and Hills (65e) contain several north-south trending bands of sand and clay formations. Tertiary-age sand, clay, and lignite are to the west, and Cretaceous-age fine sand, fossiliferous micaceous sand, and silty clays are to the east. With elevations reaching over 650 feet, and more rolling topography and ore relief than the Loess Plains (74b) to the west, streams have increased gradient, generally sandy substrates, and distinctive faunal characteristics for west Tennessee. The natural vegetation type is oak-hickory forest, grading into oak-hickory-pine to the south.

- The Fall Line Hills (65i) ecoregion, comprising the Tennessee or Tombigbee Hills in Mississippi and the Fall Line Hills in Alabama, is composed primarily of Cretaceous-age coastal plain sandy sediments. The sand and chert gravel surficial materials are covered by sandy loam topsoils. It is mostly forested terrain of oak-hickory-pine on open hills with 100-200 feet of relief. Elevations in the small Tennessee portion, roughly between Chambers Creek and Pickwick Lake in Hardin County, are 450-685 feet.

- The Transition Hills (65j) have the highest elevation in Ecoregion 65, and contain characteristics of both the Southeastern Plains (65) and the Interior Plateau (71) ecoregions. Many streams of this transition area have cut down into the Mississippian, Devonian, and Silurian-aged rocks and may look similar to those of the Interior Plateau (71). Cretaceous-age coastal plain deposits of silt, sand, clay, and gravel, however, overlie the older limestone, shale, and chert. It is a mostly forested region of oak-hickory-pine, and has had pine plantation activities associated with pulp and paper operations.

- The Western Highland Rim (71f) is characterized by dissected, rolling terrain of open hills, with elevations of 400-1000 feet. The geologic base of Mississippian-age limestone, chert, and shale is covered by soils that tend to be cherty, acidic, and low to moderate in fertility. Streams are characterized by coarse chert gravel and sand substrates with areas of bedrock, moderate gradients, and relatively clear water. The oak-hickory natural vegetation was mostly deforested in themed to late 1800's, in conjunction with the iron-ore related mining and smelting of the mineral limonite, but now the region is again heavily forested. Some agriculture occurs on the flatter interfluves and in the stream and river valley: mostly hay, pasture, and cattle, with some cultivation of corn and tobacco.

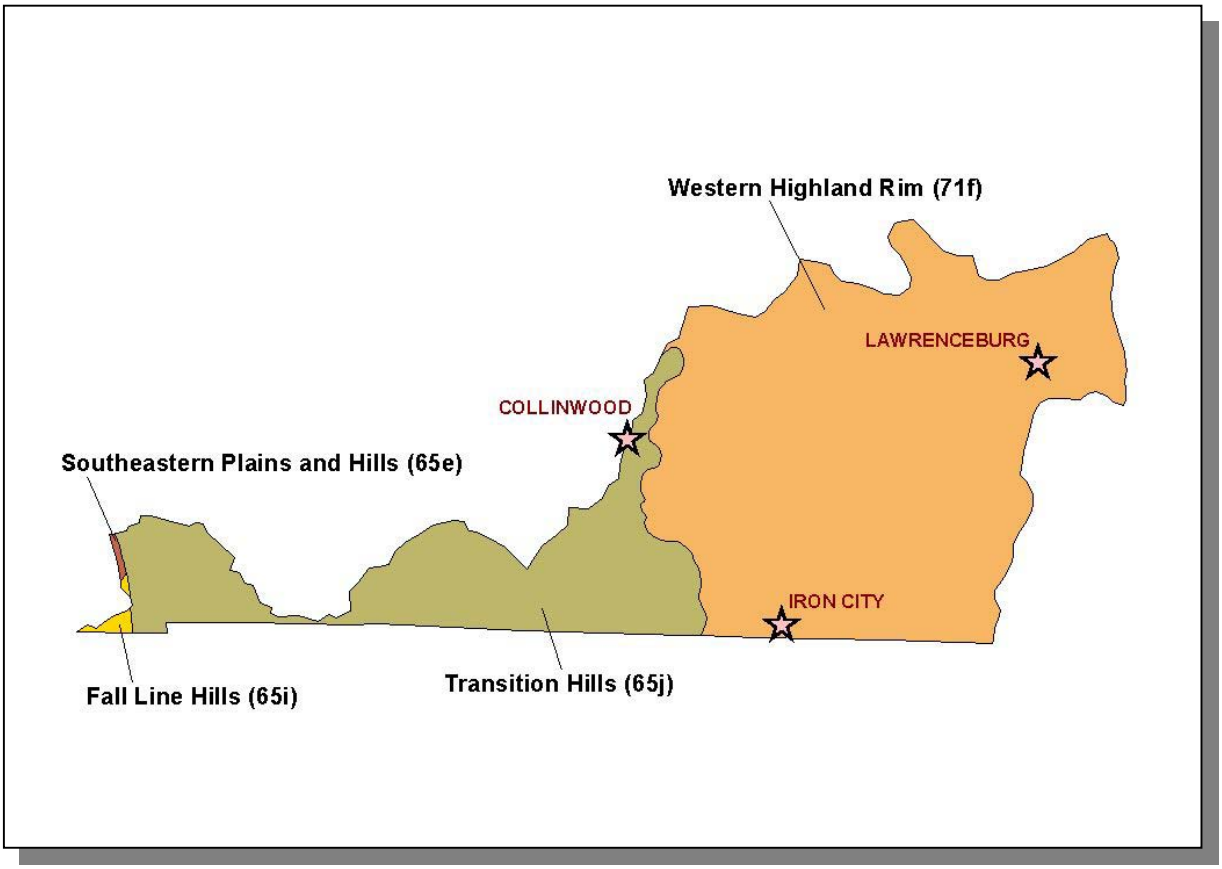

Figure 2-8. Level IV Ecoregions in the Tennessee Portion of the Pickwick Lake Watershed.
Locations of Collinwood, Iron City, and Lawrenceburg are shown for reference.

Each Level IV Ecoregion has at least one reference stream associated with it. A reference stream represents a least impacted condition and may not be representative of a pristine condition.

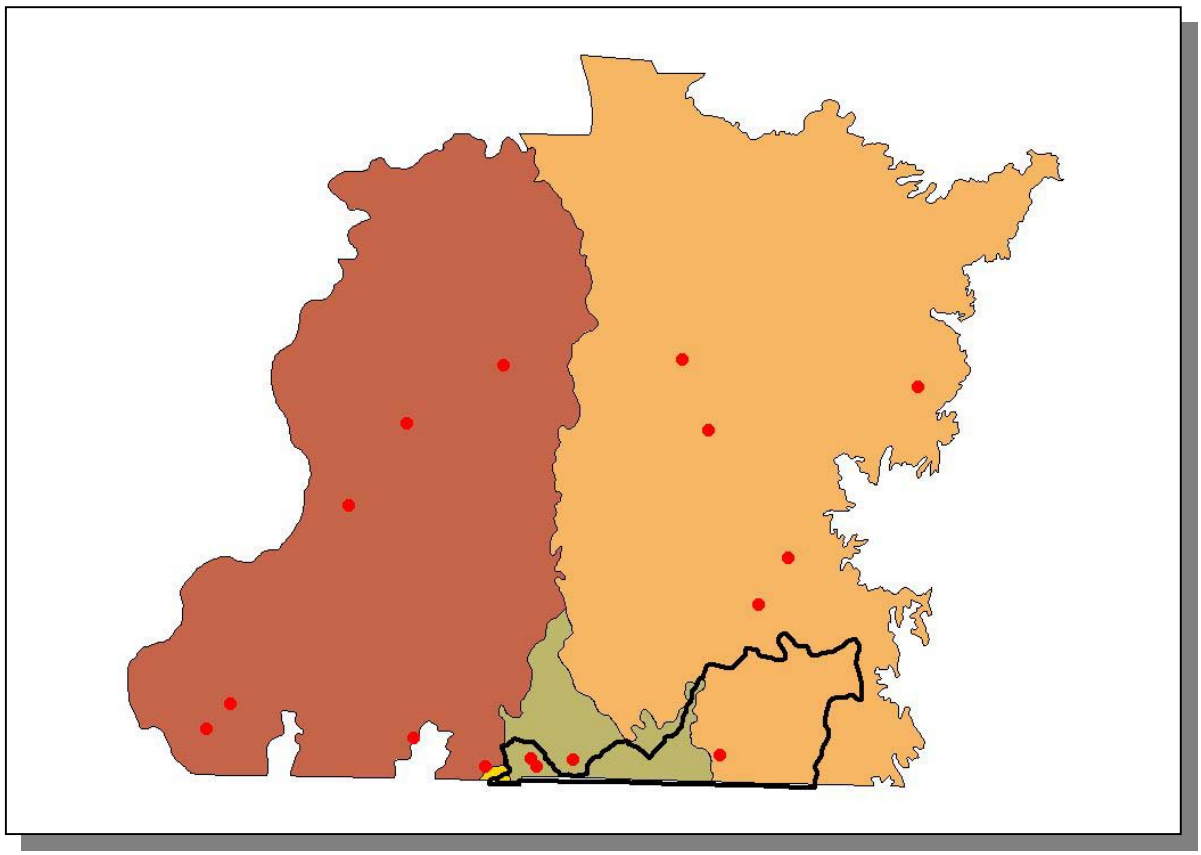

Figure 2-9. Ecoregion Monitoring Sites in Level IV Ecoregions 65e, 65i, 65j, and 71f. *The Tennessee portion of the Pickwick Lake Watershed is shown for reference. More information is provided in Pickwick-Appendix II.*

2.6. NATURAL RESOURCES.

2.6.A. Rare Plants and Animals. The Heritage Program in the TDEC Division of Natural Heritage maintains a database of rare species that is shared by partners at The Nature Conservancy, Tennessee Wildlife Resources Agency, the US Fish and Wildlife Service, and the Tennessee Valley Authority. The information is used to: 1) track the occurrence of rare species in order to accomplish the goals of site conservation planning and protection of biological diversity, 2) identify the need for, and status of, recovery plans, and 3) conduct environmental reviews in compliance with the federal Endangered Species Act.

GROUPING	NUMBER OF RARE SPECIES
Crustaceans	0
Insects	1
Mussels	1
Snails	2
Amphibians	1
Birds	1
Fish	8
Mammals	1
Reptiles	2
Plants	8
Total	**25**

Table 2-3. There are 25 Rare Plant and Animal Species in the Tennessee Portion of the Pickwick Lake Watershed.

In the Pickwick Lake Watershed, there are eight rare fish species, one rare mussel species, two rare snail species, and one rare insect species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
Ichthyomyzon gagei	Southern brook lamprey		D
Hemitremia flammea	Flame chub	MC	D
Typhlichthys subterraneus	Southern cavefish	MC	D
Etheostoma boschungi	Slackwater darter	LT	T
Etheostoma neopterum	Lollipop darter		
Etheostoma tuscumba	Tuscumbia darter	MC	D
Etheostoma corona	Crown darter	MC	E
Percina burtoni	Blotchside darter	MC	D
Ophiogomphus acuminatus	Tennessee snaketail		
Pleurobema oviforme	Tennessee clubshell		
Leptoxis praerosa	Onyx rocksnail		
Lithasia verrucosa	Varicose rocksnail		

Table 2-4. Rare Aquatic Species in the Tennessee Portion of the Pickwick Lake Watershed. *Federal Status: LE, Listed Endangered by the U.S. Fish and Wildlife Service, LT, Listed Threatened by the U.S. Fish and Wildlife Service, MC, Management Concern for the U.S. Fish and Wildlife Service. State Status: E, Listed Endangered by the Tennessee Wildlife Resources Agency; D, Deemed in Need of Management by the Tennessee Wildlife Resources Agency, T, Listed Threatened by the Tennessee Wildlife Resources Agency. More information may be found at http://www.state.tn.us/environment/nh/tnanimal.html.*

2.6.B. Wetlands. The Division of Natural Heritage maintains a database of wetland records in Tennessee. These records are a compilation of field data from wetland sites inventoried by various state and federal agencies. Maintaining this database is part of Tennessee's Wetland Strategy, which is described at:

http://www.state.tn.us/environment/epo/wetlands/strategy.zip.

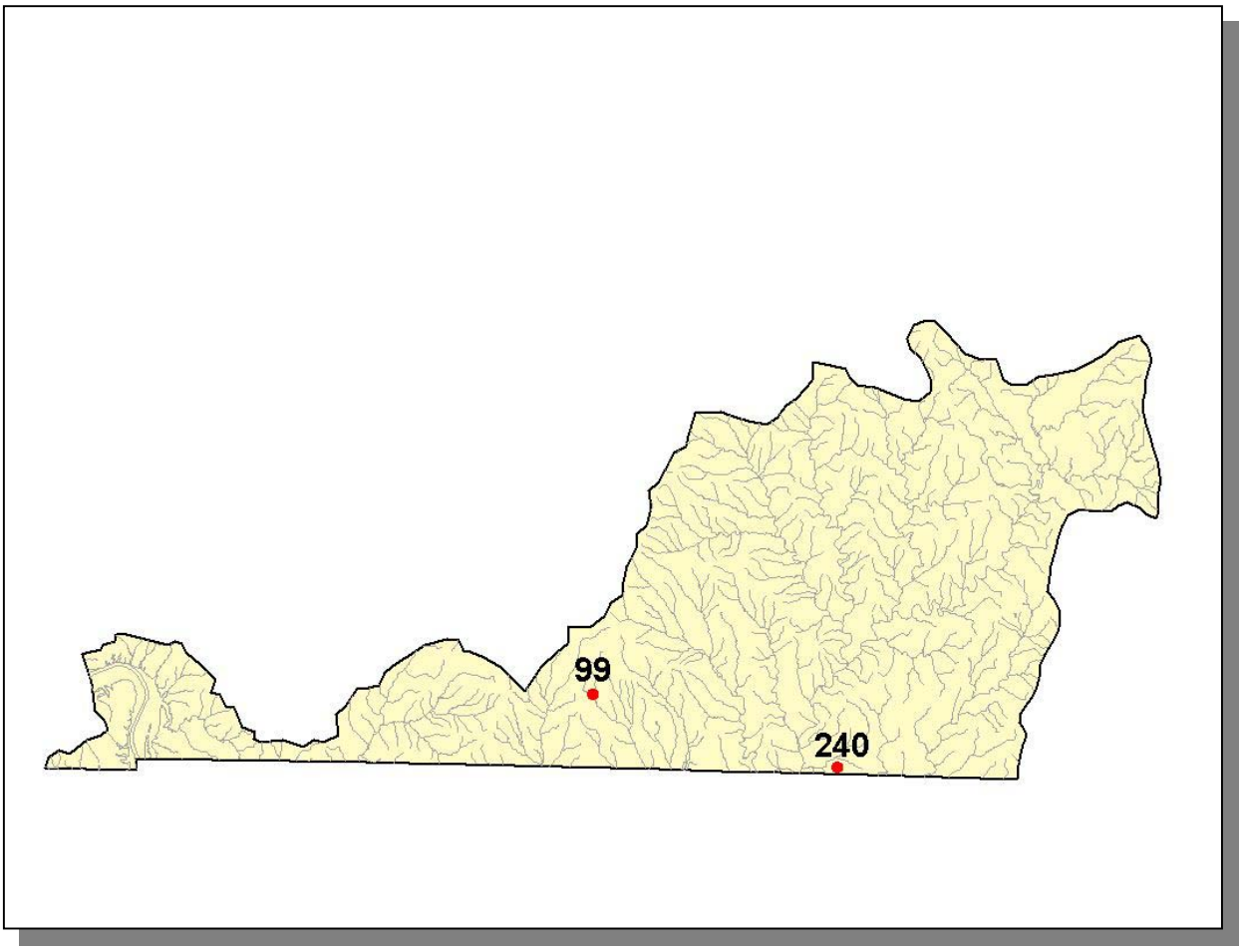

Figure 2-10. Location of Wetland Sites in TDEC Division of Natural Heritage Database in the Tennessee Portion of the Pickwick Lake Watershed. This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands in the watershed*. More information is provided in Pickwick-Appendix II.*

2.7. CULTURAL RESOURCES.

2.7.A. Interpretive Areas. Some sites representative of the cultural heritage are under state or federal protection:

- Pickwick Landing State Park, site of a riverstop dating to the 1800's, now the location of Pickwick Reservoir.

In addition, many local interpretive areas are common, most notably, the Tennessee River Waterways Museum, which showcases TVA and Tennessee River history.

2.7.B. Wildlife Management Area (WMA). The Tennessee Wildlife Resources Agency manages the Laurel Hill Wildlife Management Agency, which is partly in the Pickwick Lake watershed.

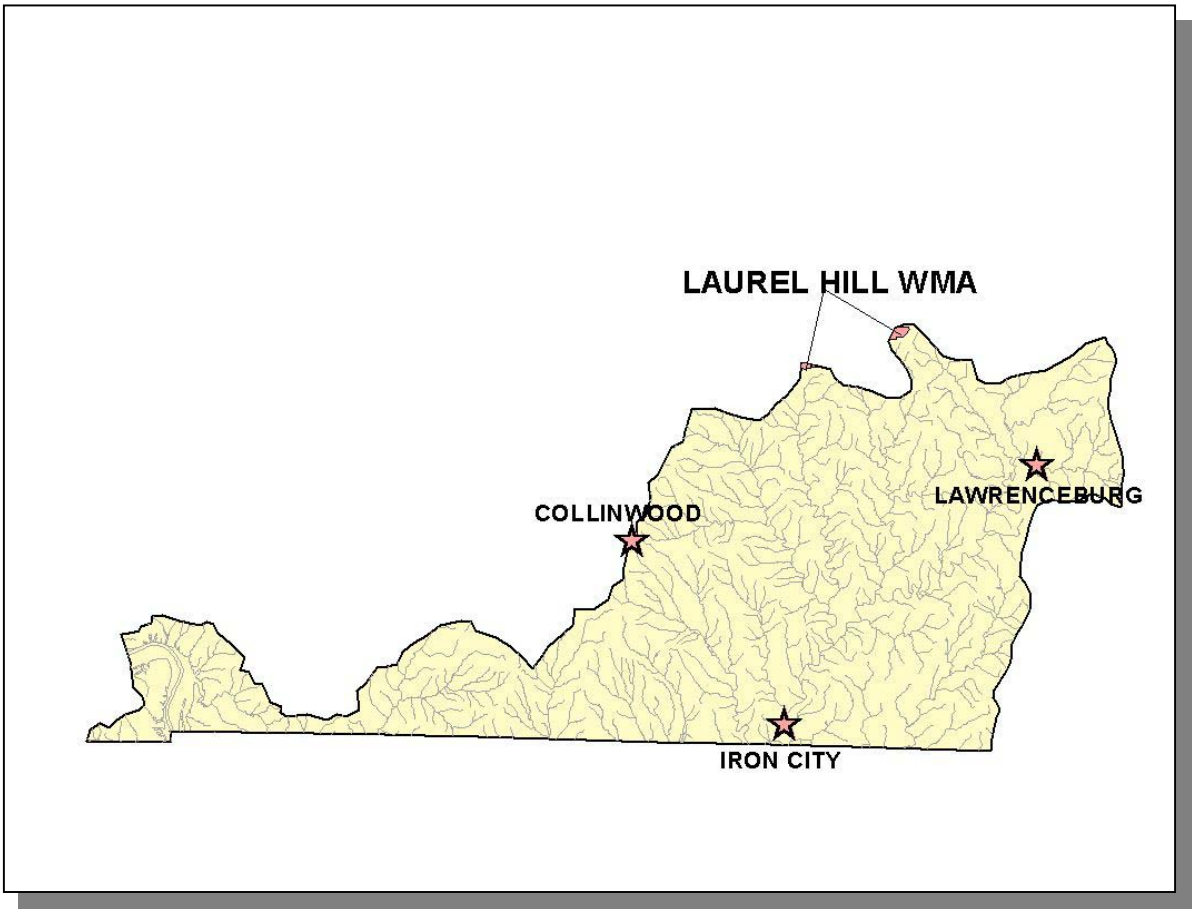

Figure 2-11. TWRA Manages Pea Ridge Wildlife Management Area in the Pickwick Lake Watershed. *Locations of Collinwood, Iron City, and Lawrenceburg are shown for reference.*

2.8. Tennessee Rivers Assessment Project. The Tennessee Rivers Assessment is part of a national program operating under the guidance of the National Park Service's Rivers and Trails Conservation Assistance Program. The Assessment is an inventory of river resources, and should not be confused with "Assessment" as defined by the Environmental Protection Agency. A more complete description can be found in the Tennessee Rivers Assessment Summary Report, which is available from the Department of Environment and Conservation and on the web at:

http://www.state.tn.us/environment/wpc/publications/riv/

STREAM	NSQ	RB	RF	STREAM	NSQ	RB	RF
Beeler Creek	2			Little Cypress Creek	2		
Bluewater Creek	3		1	Little Shoal Creek	3		
Butler Creek	2			Long Branch Creek	3		
Chisholm Creek	2			Middle Butler Creek	2		
Clack Branch Shoal Creek	2			Middle Cypress Creek	2		
Crowson Creek	2			Piney Branch Knob Creek	2		
Cypress Creek	2			Pond Creek	2		
Dry Creek	1			Scab Branch Factory Creek	2		
Factory Creek	1			Second Creek	2		
Grandaddy Creek	3			Shawnette Creek	2		
Grassy Creek	2			Shoal Creek	1,3	2	
Holly Creek	2			Stults Creek	2		
Hurricane Creek	3			Spring Branch Knob Creek	3		
Knob Creek	2			Swanegan Creek	2		
Last Butler Creek	2			Wolf Creek	3		
Little Bluewater Creek	3						

Table 2-5. Stream Scoring from the Tennessee Rivers Assessment Project.

Categories: NSQ, Natural and Scenic Qualities
RB, Recreational Boating
RF, Recreational Fishing

Scores: 1. Statewide or greater Significance; Excellent Fishery
2. Regional Significance; Good Fishery
3. Local Significance; Fair Fishery
4. Not a significant Resource; Not Assessed